

Figure 1 (a) through (e) illustrate the process steps for forming a plurality of substantially coplanar conductive bumps on the surface of a printed circuit board;

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Figure 2 (a) through (b) illustrate the process steps for forming a plurality of substantially coplanar conductive bumps on the surface of a printed circuit board comprising two conductive layers that are connected by plated through holes.

Figure 3 (a) through 3 (f) illustrate the process steps for forming a multi-layered circuit board in which at least two of the conductive layers are interconnected by a solid conductive bump.

Figure 4 (a) through 4(g) illustrate the process steps for forming a printed circuit board in which at least two conductive layers on opposing surfaces of a dielectric layer are connected by a solid conductive bump.

Figure 5 (a) through 5 (e) illustrate the processing steps for fabricating a metal layer that can be used to provide rigidity to the initial structures that are formed during the manufacture of flexible printed circuit boards.

DETAILED DESCRIPTION

In accordance with the present invention, a conductive layer comprising a plurality of conductive bumps, a plurality of electrically conductive circuit lines, and a plurality of contact pads is subtractively formed from a single substantially planar layer of metal that has been disposed on a surface of a dielectric layer. Because the lines, pads and bumps are all formed from a single metallic layer, the bumps, pads, and lines are electrically connected and continuous. As used herein the term "continuous" means that there are no interfaces between the conductive bumps, the contact pads, and the circuit lines. In one embodiment, a first metal layer, preferably a substantially planar metal